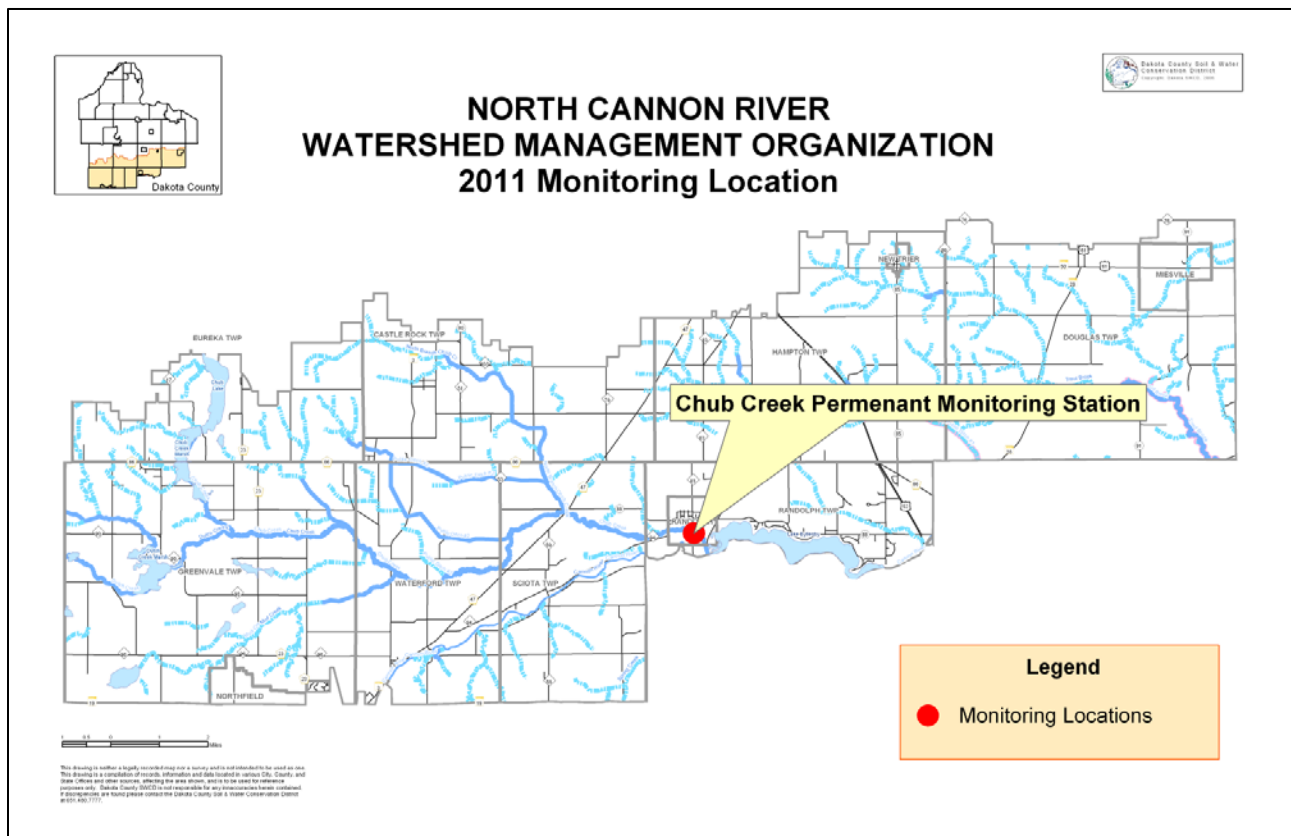


2011 North Cannon River Watershed Management Organization Mid-Season Water Quality Monitoring Report

1. 2011 Water Quality Monitoring Activities:

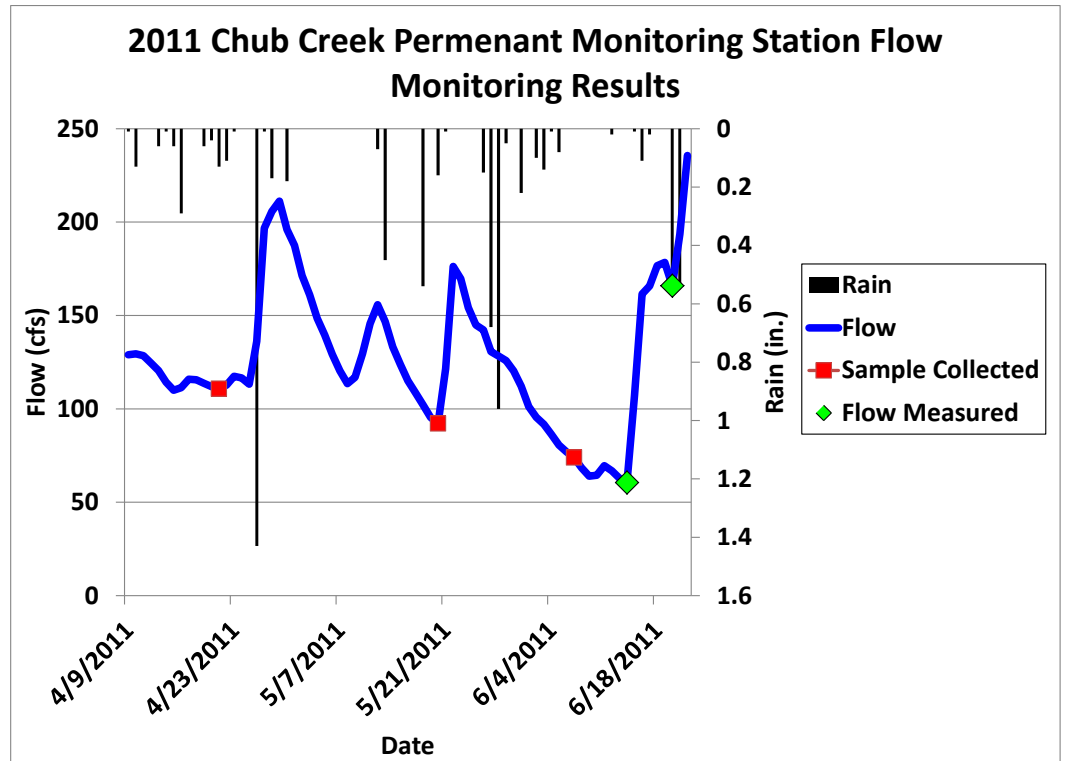
- Installed automated stage (depth) monitoring equipment at the Chub Creek Permanent Monitoring Station.
- Measured flow at the Chub Creek Permanent Monitoring Station to allow for the conversion of stage data to flow data.
- Began collecting monthly grab samples from the Chub Creek Permanent Monitoring Station.
- Continue to recruit citizen volunteers for the Minnesota Pollution Control Agency's Citizen Stream Monitoring Program.

2. Sample Locations:

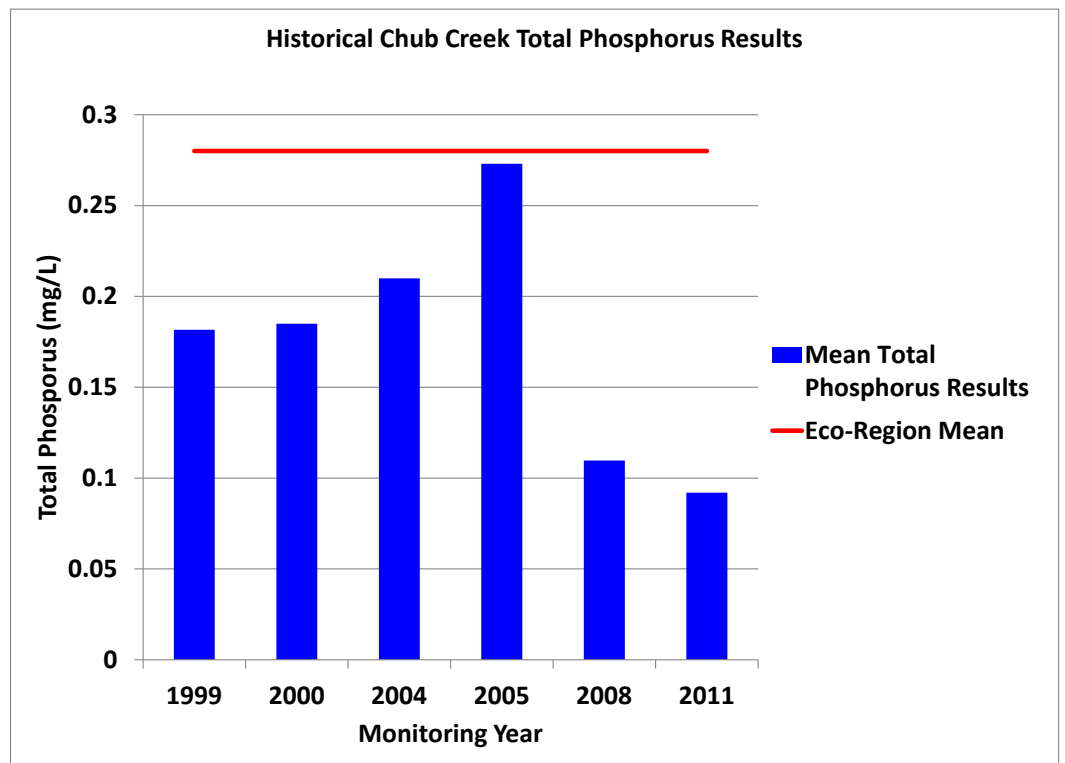


3. Water Quality/Quantity Monitoring Results:

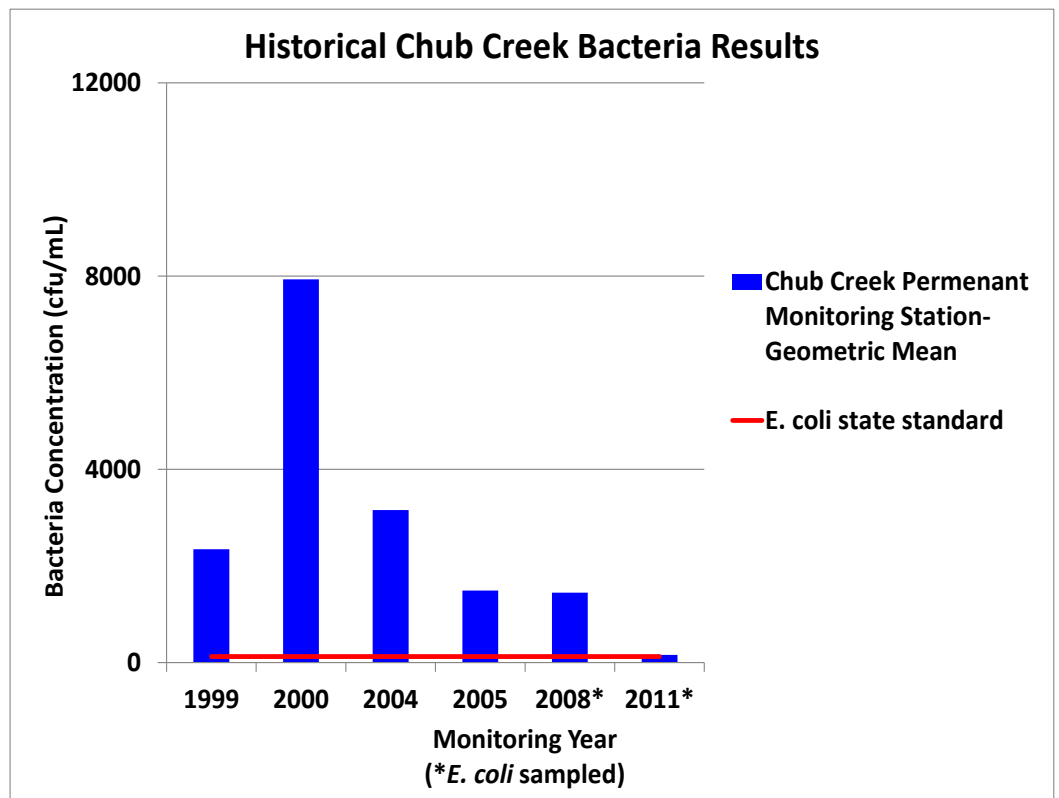
- Continuous stage (water level) data were collected, without interruption, at the Chub Creek Permanent Monitoring Station.
- Three grab samples were collected and two flow measurements have been made at the Chub Creek Permanent Monitoring Station.



- Low total phosphorus concentrations are generally considered a good indicator of high water quality.
- Recent trends suggest slight decrease in total phosphorus concentrations. However, this may be a reflection of fewer storm samples, rather than a decrease in total phosphorus.



- Chub Creek has been designated as impaired for fecal coliform bacteria
- 2011 bacteria results less than historical average, but may be a reflection of fewer storm samples.
- *1999-2005 samples were analyzed for fecal coliform concentrations, while 2008/2011 samples were analyzed for *E. coli* concentrations (change in state standard).



4. Conclusions:

The 2011 water quality monitoring results for the Chub Creek Permanent Monitoring Station are relatively good, with most sample results falling well below state water quality standards or Minnesota Pollution Control Agency recommended eco-region mean concentrations. However, several issues can be observed in these preliminary findings.

Bacteria concentrations continue to be problematic on Chub Creek. Recent results have decreased from more elevated values detected in 2000. However, this could be the result of a change in laboratory endpoints (fecal coliform to *E. coli*) or a change in recent monitoring strategies. Regardless, bacteria results remain above the state standard. Grant funding secured for the North Cannon Watershed (Clean Water Fund and MPCA 319) will be used to install projects to reduce bacteria contamination in Chub Creek.

Nitrate concentrations in Chub Creek in 2011 were slightly elevated compared to historical results and warrant continued surveillance. Although 2011 nitrate concentrations are higher than historical averages, they remain below state standards. However, the Minnesota Pollution Control Agency is proposing a change to nitrate standards. Should the proposed standard be implemented, Chub Creek could be designated as impaired for nitrates in the near future.